In the Claims

Claim 11 has been rewritten as follows:

--11. The method of claim 10 where non-detecting gels and buffer materials are used so as to enable combined mixtures of multiple groups of BRCA1 genes to be subjected to the electrophoresis together.--

Please withdraw claims 7-9 which are to be presented in a divisional application pursuant to the requirement in the parent application for restriction.

Please amend claim 4 as follows:

-- 4. (Amended) Test kits for enabling BRCA1 gene testing comprising the primer pairs listed in Table 4 under "PRIMER SEQUENCES" column, mixed in about 20mM of Tris-HCl, 50mMKCl, 25pM of dNTP and 5% formamide.--

Please add the following claims:

-- 12. The method of claim 10 wherein an eleventh exon fragment has been split 16 times to produce said exon fragments numbered 11.1 F and R through 11.16 F and R. --

-- 13. The method of claim 10 wherein the primers for respective F and R exon fragments numbered 2-5, 11.1, 11.2, 11.4-11.6, 11.9, 11.10, 11.12, 11.14, 11.16, 12-18 and 22-24 are each clamped by a pair of clamping sequences. --

-- 14. The method of claim 10 wherein the primers for respective F and R exon fragments numbered 6-10, 11.3, 11.7, 11.8, 11.11, 11.13, 11.15, and 19-21 are each clamped by a single clamping sequence. --

Remarks

The "new matter" reference in paragraph 2 of the current Office action and in the 35 U.S.C. 132 objection in paragraph 6, has now been cancelled, as required.

The indefiniteness of claims 4-6 and 10-11 has been obviated by the current amendments that clarify which primers with SEQ ID NOS 37-46 are paired with particular exon fragments, and which primers 47-120 are used with particular exon fragments, and which primers 47-120 are used with particular exon fragments and the clamping sequence attachments.

In claim 10, proper antecedent has now been provided.

It accordingly would appear that the 35 USC 112, second paragraph, rejection for indefiniteness should now be withdrawn.

The 35 U.S.C. 103 (a) Rejection

The claims have been rejected, in the absence of evidence of "unexpected and improved" results, as the "obvious" combination of the teachings of Vijg and Vijg II, modified "to provide a second GC clamp" as applied to detect mutations in the BRCA1 gene disclosed in both Liskay et al and Park et al; though the Office concedes that "Vijg does not teach testing gene sequences of the BRCA1 gene".

Unexpected And Improved Results

The before-mentioned Vijg et al paper submitted herewith reports that the particular specific now-claimed primers with specific sequence numbers paired with particular exon fragments, and as applied to the specific BRCA1 gene, not even suggested, let alone disclosed in any possible combination of the cited references, has indeed produced "unexpected" and "improved" results.

The relation of this paper to the present application (a draft of which, as before stated, served as the basis for drafting the current patent application) may be noted as follows.

The test procedures for the two-dimensional electrophoresis described for the BRCA1 at the bottom of page 4 and on page 5 of the original specification herein, are described on page 749 of said paper under the title "Two Dimensional Electrophoresis". The earlier PCR primer and amplification preparation for both "long-distance PCR" and "multiplex short PCR", including the "7-plex" PCR, etc., discussed on pages 3 and 4 of the original specification, are more fully detailed at the bottom of page 747 and on pages 748 and 749 of said paper.

"Figure 1" of the paper (page 748) and "Figure 2" on page 749 are identical respectively to the left-hand schematic chart and the right-hand photograph copy of original "Fig.1B" of the original application. In view of the Office new comment (advanced for the first time during the prosecution of the application) that "the copy of these figures in the specification are unclear, especially the photographs" (bottom of page 9 of the current Office action), applicant respectfully requests permission to substitute copies of Figures 1 and 2 of the paper, which are clearer, for the original copy of Fig. 1B, and submits herewith a formal drawing therefor, further requesting

permission for the use of the photographic copy since such shows much more detail than an attempt at a hand-drawn reproduction thereof would disclose.

Apart from the "highly accurate low-cost test for BRCA1 mutations" produced for the first time by the invention (and certainly not in the earlier cited work of Vijg), the abstract of the paper discloses that

> "all 14 mutations (previously identified) were identified, as well as an additional five that had previously escaped detection".

The abstract also discloses that

> "In addition to the 19 mutations, a total of 15 different polymorphic variants were scored, most of which were recurring."

It is submitted that none of these new and highly important results was either "obvious", or taught or even hinted at in any possible combination of the cited references, such that withdrawal of the 35 U.S.C. 103 (a) ground of rejection is appropriate and is accordingly respectfully requested.

Newly added dependent claims 12-14 depend from claim 10 more limitedly specifying clamping details and are thus also allowable.

Any costs incurred by this filing, including time extension fees in this connection and in the parent application, petition for which extensions is hereby made, may be charged to deposit account number 18-1425 of the undersigned counsel.

Respectfully submitted,

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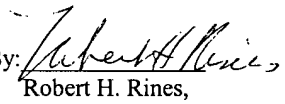
By: 
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